

IN THE CLAIMS:

The following listing of claims will replace all prior versions, and listings, of claims in the application.

- 1-20. (canceled)
21. (new): A distributor comprising:
a first set of connectors for connecting to a first set of external cables;
a second set of connectors for connecting to a second set of external cables;
at least one jumper cable that connects between a connector of the first set of connectors and a connector of the second set of connectors for providing a connection between one of the first set of external cables and one of the second set of external cables; and
a mechanism configured to disconnect a first end of the jumper cable from a first connector of the first set of connectors and to reconnect the first end to a second connector of the first set of connectors.
22. (new): The distributor of claim 21, wherein the mechanism includes a device configured to position the mechanism.
23. (new): The distributor of claim 21, wherein the mechanism is configured to be operable by control software.
24. (new): The distributor of claim 21, wherein the external and jumper cables are optical cables, the connectors are optical connectors, and said providing connections provides optical connections between the first and second subsets of external cables.
25. (new): The distributor of claim 21, wherein the external and jumper cables are optical and electrical cables, the connectors are optical and electrical connectors,

and said providing connections provides optical and electrical connections between the first and second subsets of external cables.

26. (new): The distributor of claim 21, wherein the mechanism is further configured to disconnect a second end of the jumper cable from a first connector of the second set of connectors and to reconnect the second end of the jumper cable to a second connector of the second set of connectors.
27. (new): The distributor of claim 21, wherein the mechanism includes an assembly of sub-mechanisms, and wherein each sub-mechanism is configured to perform one or more of the operations of retaining, gripping, pushing, moving, and extracting jumper cables while the mechanism is connecting or disconnecting jumper cables from connectors of the first or the second sets of connectors.
28. (new): The distributor of claim 27, wherein the sub-mechanisms are configured to be operable by control software.
29. (new): The distributor of claim 27, wherein at least one sub-mechanism is positioned to perform operations involving the first set of connectors, and at least one sub-mechanism is positioned to perform operations involving the second set of connectors.
30. (new): The distributor of claim 21, wherein the first set of connectors are positioned to face the second set of connectors, and the jumper cables and the mechanism are positioned between the first set of connectors and the second set of connectors.
31. (new): A distribution frame comprising:
a first cross-connection panel and a second cross-connection panel that face each other; and

a first set of connection modules that are attached to the first cross-connection panel, and a second set of connection modules that are attached to the second cross-connection panel;

wherein each module of the first set is connected to one end of an optical fiber of a first group of fibers, each module of the second set is connected to one end of an optical fiber of a second group of fibers, and an optical fiber of the first group is connected to an optical fiber of the second group by a jumper fiber which has two ends respectively received in a port of one of the modules of the first set and in a port of one of the modules of the second set,

wherein the first panel includes at least one first connection module support to which are mounted one or more of the first set of modules, and the second panel includes at least one first connection module support to which are mounted one or more of the second set of modules,

wherein each of the first and second panels includes at least one second connection module support, and the second connection module support of the first panel and the second connection module support of the second panel cooperate with each other to form a storage area between the first and second panels for jumper fibers that are not in use, and

wherein the jumper fibers not in use are connected in parallel to each other between one of the second connection module supports on the first panel and one of the second connection module supports on the second panel, and

wherein each jumper fiber is positioned directly above the preceding one as and when it is stowed.

32. (new): The distribution frame of claim 31, wherein the second connection module supports face each other.

33. (new): The distribution frame of claim 31, wherein the jumper fibers are all the same length.
34. (new): The distribution frame of claim 31, wherein the first and second cross-connection panels each have first and second opposite sides respectively extending in a first direction and a second direction, and the first and second connection module supports of the first cross-connection panel and the first and second connection module supports of the second cross-connection panel are adapted to rotate about a respective spindle extending in the first direction so that each support is adapted to be swung between a rest position, in which the support extends toward the exterior of the distribution frame at an angle to the first direction, and a working position, in which the support extends in the second direction.
35. (new): The distribution frame of claim 31, wherein each second connection module support is on one side of the associated cross-connection panel.
36. (new): The distribution frame of claim 31, wherein the ends of each jumper fiber extend in a third direction.
37. (new): The distribution frame of claim 31, wherein test means are adapted to test remotely any optical fiber of the first group and/or any optical fiber of the second group continuously or in response to a reported fault.
38. (new): A method comprising:
- a) moving a device into a storage area, wherein the device is configured to connect and disconnect jumper fibers;
 - b) using the device to disconnect a first end of a jumper fiber connected to a second support on a first cross-connection panel in the storage area;
 - c) using the device to move the first end of the jumper fiber toward a first support on the first cross-connection panel;

- d) using the device to connect the first end of the jumper fiber to a port of a module on the first support;
 - e) moving the device into the storage area;
 - f) using the device to disconnect a second end of the jumper fiber connected to a second support on a second cross-connection panel in the storage area;
 - g) using the device to move the second end of the jumper fiber toward the first support on the second cross-connection panel; and
 - h) using the device to connect the second end of the jumper fiber to a port of a module on the first support on the second cross-connection panel.
39. (new): The method of claim 38, wherein the jumper fiber to be disconnected in the storage area is at the highest level of that area.
40. (new): The method of claim 38, wherein the jumper fiber is connected above a mass of jumper fibers in use.
41. (new): The method of claim 38, wherein steps b) and f) further include:
- 1) moving the device in a first direction, a second direction and a third direction in the vicinity of a port of a connection module on a support in a working position, to which port a fiber end is connected, in order to position a holding member substantially on an axis of the port,
 - 2) moving the device in the third direction towards the connection module until the fiber end enters a slot of the holding member,
 - 3) moving a retaining member in the first direction to its working position to fasten the fiber end to the retaining member,
 - 4) moving the device in the third direction a small distance away from the connection module, and
 - 5) moving the support into a rest position.
42. (new): The method of claim 38, wherein steps d) and h) further include:

- 1) moving the device in a first direction, a second direction and a third direction in the vicinity of a port of a connection module on the support in the working position, to which port the fiber end is connected, in order to position the holding member substantially on the axis of the port,
- 2) moving a retaining member in the first direction to its rest position to separate the fiber end to be connected from the holding member,
- 3) moving a pusher member in the third direction towards the connection module to extract the fiber end from the holding member,
- 4) moving the device in the third direction towards the connection module until the fiber end is connected to the connection module, and
- 5) moving the device in the third direction away from the connection module.

43. (new): The method of claim 38, wherein jumper fibers not in use are connected in parallel to each other between the second support on the first panel and the second support on the second panel, each jumper fiber being arranged directly above the preceding one when it is stored.

44. (new): The method of claim 38, wherein the first cross-connection panel and the second cross-connection panel face each other, and wherein the second supports on the first and second panels cooperate with each other to form the storage area for jumper fibers that are not in use.

45. (new): A method comprising:

- a) moving a device into an area between a first support on a first cross-connection panel and a first support on a second cross-connection panel, wherein the device is configured to connect and disconnect jumper fibers;
- b) using the device to disconnect a second end of a jumper fiber connected to the first support on the second cross-connection panel;
- c) releasing the second jumper fiber end into a mass of jumper fibers in use;
- d) using the device to disconnect a first end of the jumper fiber connected to the first support on the first cross-connection panel;

e) extracting the jumper fiber from the mass of jumper fibers in use with an extractor device; and

f) using the device to connect the jumper fiber in a storage area.

46. (new): The method of claim 45, wherein during the step (e) traction is applied to the first end of the jumper fiber.

47. (new): The method of claim 46, wherein traction is applied to a jumper fiber above the first cross-connection panel.

48. (new): The method of claim 45, wherein the jumper fiber extractor device includes a pair of rollers between which the jumper fiber passes and which can be driven in rotation to feed the jumper fiber.

49. (new): The method of claim 48, wherein the rollers are covered with an elastically deformable material to conform to the jumper fiber's shape as it passes between the rollers.

50. (new): The method of claim 45, wherein steps b) and d) further include:

- 1) moving the device in a first direction, a second direction and a third direction near a port of a connection module on a support in a working position, to which port a fiber end is connected, in order to position a holding member substantially on an axis of the port,
- 2) moving the device in the third direction towards the connection module until the fiber end enters a slot of the holding member,
- 3) moving a retaining member in the first direction to its working position to fasten the fiber end to the retaining member,
- 4) moving the device in the third direction a small distance away from the connection module, and
- 5) moving the support into a rest position.

51. (new): The method of claim 45, wherein step f) further includes:
- 1) moving the device in a first direction, a second direction and a third direction near a port of a connection module on a support in a working position, to which port a fiber end is connected, in order to position a holding member substantially on an axis of the port,
 - 2) moving a retaining member in the first direction to its rest position to separate the fiber end to be connected from the holding member,
 - 3) moving a pusher member in the third direction towards the connection module to extract the fiber end from the holding member,
 - 4) moving the device in the third direction towards the connection module until the fiber end is connected to the connection module, and
 - 5) moving the device in the third direction away from the connection module.
52. (new): The method of claim 45, wherein jumper fibers not in use are connected in parallel to each other between a second support on the first panel and a second support on the second panel, each jumper fiber being arranged directly above the preceding one when it is stowed.
53. (new): The method of claim 45, wherein the second supports on the first and second panels cooperate with each other to form the storage area for jumper fibers that are not in use.